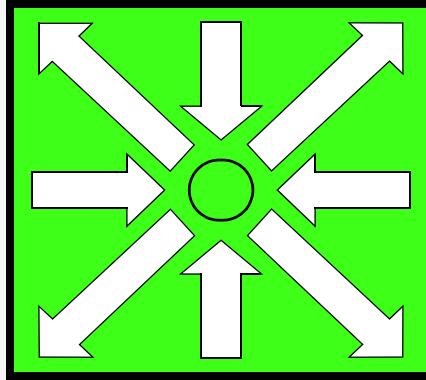


SmartSwitch 2000



Supports Multiple Management Modules

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Introduction

This section introduces the SPECTRUM Device Management documentation for the SmartSwitch 2000 Modules.

This introduction contains the following topics:

- [Purpose and Scope](#)
- [Required Reading](#)
- [Supported Devices](#) (Page 6)
- [The SPECTRUM Model](#) (Page 6)

Purpose and Scope

Use this document as a guide for managing the SmartSwitch devices described on [Page 6](#) with SPECTRUM management modules SM-CSI1068/80/87. This document describes the icons, menus, and views that enable you to remotely monitor, configure, and troubleshoot SmartSwitch 2000 devices through software models in your SPECTRUM database.

Information specific to SM-CSI1068/80/87 is what is primarily included in this document. For general information about device management using SPECTRUM and explanations of

SPECTRUM functionality and navigation techniques, refer to the topics listed under [Required Reading](#).

Required Reading

To use this documentation effectively, you must be familiar with the information covered by the other SPECTRUM online documents listed below.

- ***Getting Started with SPECTRUM for Operators***
- ***Getting Started with SPECTRUM for Administrators***
- ***How to Manage Your Network with SPECTRUM***
- ***SPECTRUM Views***
- ***SPECTRUM Menus***
- ***SPECTRUM Icons***
- ***SPECTRUM Software Release Notice***

Supported Devices

The 8H02-16, 2E42-27, 2E42-27R, 2E43-27, and 2E43-27R SmartSwitch Modules are all high performance Ethernet switching devices that provide Fast Ethernet uplinks.

The 8H02-16 is a 16-port device having 14 standard 10Base-T front panel ports that are supported by RJ-45 connectors and two 100Base-TX or multi-mode fiber 100Base-FX uplinks using Fast Ethernet Port Interface Modules.

The 2E42-27 and 2E42-27R devices expand the capabilities of the 8H02-16 by providing 27 ports including 24 standard Ethernet ports with RJ-45 connectors, two slots for Fast Ethernet Port Interface Modules, and one slot for a High Speed Interface Module to provide a high-speed ATM uplink or FDDI connectivity. The 2E42-27 has a single power supply and the 2E42-27R has dual redundant power supplies.

The 2E43-27 and 2E43-27R provide the same feature set as the 2E42-27 and 2E42-27R but come equipped with two RJ21 connectors to support 24 ports of switched Ethernet rather than the 24 RJ45's. This allows the use of Telco cables in the wiring closets with patch panels to reduce the complexity of cable management.

All five devices offer RMON, port redirection, broadcast suppression, and full duplex support on all interfaces, with support for IEEE Auto-Negotiation on the 100Base-TX ports.

The SPECTRUM Model

Modeling results in the creation of Device icons that represent the devices and Application icons that represent their supported applications.

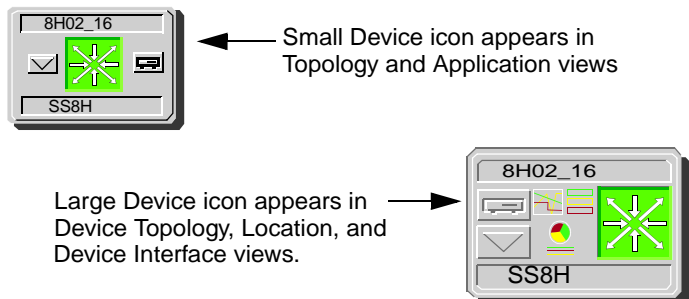
When modeling a device, the model type **SS8H** appears in the Select Model Type dialog box. The names listed below refer to the model names used in SPECTRUM to specify attributes, actions, and associations for SmartSwitch Modules:

- 8H02_16 (SmartSwitch Module, Model 8H02-16)
- 2E42_27 (SmartSwitch Module, Model 2E42-27)
- 2E42_27R (SmartSwitch Module, Model 2E42-27R)
- 2E43_27 (SmartSwitch Module, Model 2E43-27)
- 2E43_27R (SmartSwitch Module, Model 2E43-27R)

The Device icons contain double-click zones and provide access to Icon Subviews menus that let you perform device management activities such as those listed in [Tasks](#) on Page 9.

As [Figure 1](#) (Page 7) shows, the appearance of the Device icons varies slightly depending on the kind of view it appears in.

Figure 1: Device Icons



Option	Accesses the...
Fault Management	Fault Management View, which is described in the How to Manage Your Network with SPECTRUM documentation.
Device	Device Views (Page 10)
Device Topology	Device Topology View (Page 20)
Application	Application Views (Page 21)
Configuration	Configuration Views (Page 36)
Model Information	Model Information View (Page 43)
Primary Application	Menu options that let you select either Gen Bridge App or MIB-II as the primary application.
Power Supplies	Power Supply Information View (Page 44)

The device-specific Icon Subviews menu options available from the Device icon are listed below.

The rest of this document covering management module SM-CSI1068/80/87 is organized as follows:

- *Tasks* (Page 9)
- *Device Views* (Page 10)
- *Device Topology View* (Page 20)
- *Application Views* (Page 21)
- *Performance Views* (Page 35)
- *Configuration Views* (Page 36)
- *Model Information View* (Page 43).
- *Power Supply Information View* (Page 44)

Tasks

This section contains an alphabetical list of device management tasks, with each task providing one or more links to views that let you perform the task.

Administrative Information (check)

- [Model Information View](#) (Page 43)
- [Power Supply Information View](#) (Page 44)

Alarm Thresholds (set)

- [Interface Icon Subviews Menu](#) (Page 11)

Applications Supported (check)

- [Application Views](#) (Page 21)

Configuration Information (check)

- [Configuration Views](#) (Page 36)
- [Device Configuration View](#) (Page 36)
- [Port Configuration - CSIIfPort View](#) (Page 38)
- [FddiMAC Device Configuration View](#) (Page 38)

IP Address (find/change)

- [Device Views](#) (Page 10)
- [Chassis Device View](#) (Page 14)

Performance (check)

- [Device Views](#) (Page 10)
- [Interface Icon](#) (Page 11)

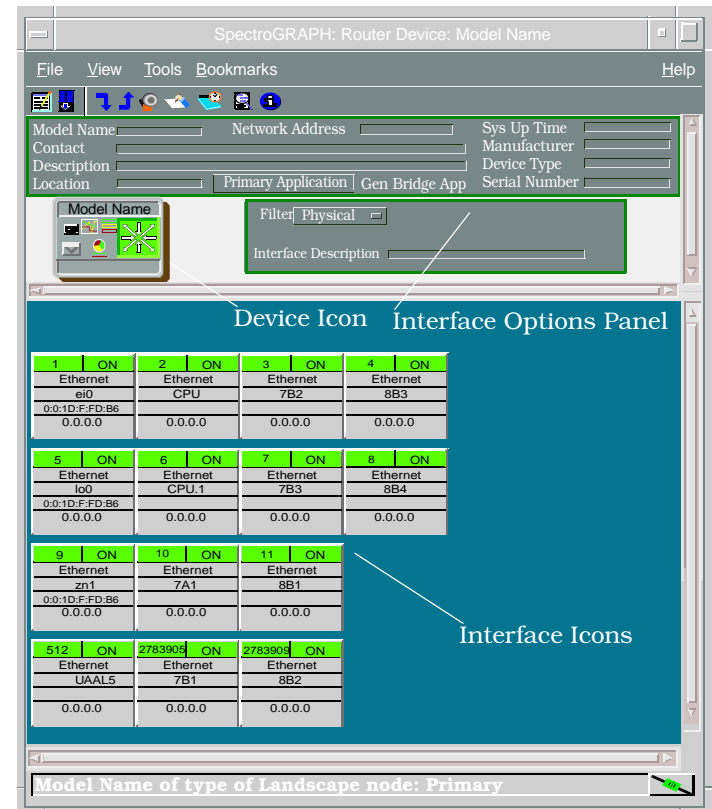
Device Views

This section describes the following Device views and subviews available for the SmartSwitch Modules.

Interface Device View

This section describes the Interface icons and the Interface Options panel displayed in the Interface Device view. This view provides dynamic configuration and performance information for each interface on the device. If the configuration changes, SPECTRUM modifies the Device view after the next polling cycle to reflect the new configuration. This view also provides a Device icon that allows you to monitor the device operation and to access other device-specific views. [Figure 2](#) shows an example of the Interface Device view for the Model 8H02-16. The views for the Model 2E42-27 and Model 2E43-27 are similar except for the number of Interface icons.

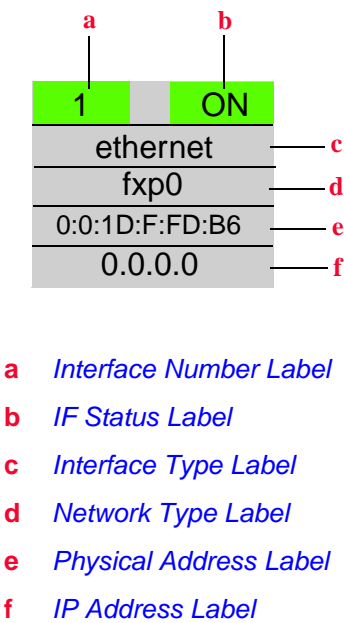
Figure 2: Interface Device View



Interface Icon

These icons represent the interfaces or ports of the device. The icons identify the type of interface or port (e.g., Ethernet) and provide statistical information. [Figure 3](#) shows an example of an Interface icon, its Icon Subviews menu, and its labels/double-click zones.

Figure 3: Interface Icon



Interface Icon Subviews Menu

[Table 1](#) describes the Interface icon device-specific subviews menu selections.

Table 1: Interface Icon Subviews Menu

Menu Selection	Description
Configuration	Opens the Device Configuration view described in Configuration Views .
Model Information	Opens the Model Information view described in the SPECTRUM Views .

Interface Number Label

This label displays the interface (port) number.

IF Status Label

This label displays the status of this interface. Double-click this label to open the Port Configuration - CSIIIfPort view described in [Configuration Views](#). [Table 2](#) and [Table 3](#) list the possible states relative to the application selected (Physical or Bridging). The default application for this view is Physical (MIB-II). To select the application to be displayed, click the **Filter** menu button in the Interface Options panel. (Refer to

the [Interface Options Panel](#) description for more information on the Filter menu button.)

Table 2: Administrative Status for the Physical or MIB II Application

Color	Status	Description
Green	ON	Port is operational.
Blue	OFF	Port is off.
Yellow	TST	Port is in the test mode.

Interface Type Label

This label displays the interface type. [Table 3](#) lists the possible interface types.

Table 3: Interface Types

Type	Description
Other	None of the following
Reg1822	Regular 1822
HDH1822	HDLN Distant Host protocol
DDNX25	Defense Data Network X.25
rfc877X25	RFC877 X.25
Ethernet	Ethernet CSMA/CD

Table 3: Interface Types (Continued)

Type	Description
iso88023	ISO CSMA/CD
iso88024	ISO token bus
iso88025	ISO token ring
iso88026	ISO man
starLan	StarLAN IEEE 802.3
Prot10MB	ProNET 10 Mbps
Prot80MB	ProNET 80 Mbps
HyChan	Hyperchannel
FDDI	Fiber Distributed Data Interface
LAPB	X.25 Line Access Procedure, Balanced
SDLC	IBM Synchronous Data Link Control protocol
T1	T1 link (USA and Japan)
CEPT	T1 link (Europe)
BasicISDN	Basic Integrated Services Digital Network
PrimISDN	Proprietary Integrated Services Digital Network
PPSerial	Proprietary Point to Point Serial

Table 3: Interface Types (Continued)

Type	Description
PPP	Point to Point Protocol
SFTWARLPBK	Software Loopback
CLNPoverIP	Connectionless Network Protocol over IP
Enet3MB	Ethernet 3 Mbps
XNSoverIP	Xerox Network Service Protocol over IP
SLIP	Generic Serial Line IP
ULTRA	ULTRA Technologies
T-3	T3 link
SMDS	Switched Multimegabit Data Service
FrameRelay	T1 Frame relay
802.1Q	802.1 Q VLAN Encapsulation

Physical Address Label

This label displays the physical (MAC) address of the device interface. Double-click this label to open the CSI Interface Port Model Information View display described in the **SPECTRUM Views**.

Network Type Label

This label displays user-selectable network information (Address, Name, or Mask). The default is Address.

To change this label's display, use the Interface Options panel described later in this chapter, or do the following:

- 1 Double-click the label to open the Network Information Panel dialog box.
- 2 Click the network information entry you wish to display.
- 3 Click OK.

IP Address Label

This label displays the IP address for the interface. Double-click the label to open the Secondary Address Panel, which allows you to change the address and mask for this interface.

Interface Options Panel

This area of the Interface Device view ([Figure 2](#)) allows you to modify the presentation of a highlighted icon. Double-click a non-text area of this panel to open the Gauge Control Panel view described later in this chapter. The Interface Options panel provides the information described below.

Filter

This menu button allows you to select the application to be displayed by the Interface icons. You can select the following applications: 801.1Q VLAN, Physcial, Spanning Tree, and Bridging. This will provide new Configuration view off the Interface Icon subviews menu. For Further information see the Spanning Tree views in the **Bridging Applications** documentation. You may choose IP routing if the SPECTRUM Routing Services Management Module is loaded. For more information, refer to the **Routing Services Management Module Guide**.

Interface Description

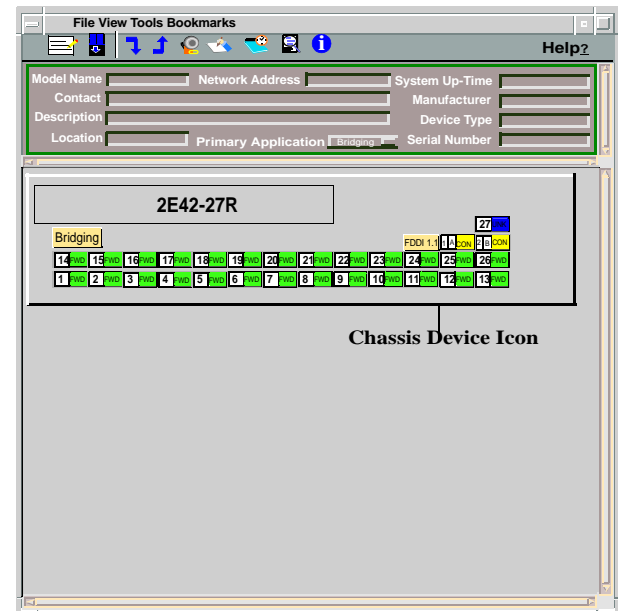
This field provides a description of the highlighted interface. If no interface is highlighted, this field is empty or shows the interface previously highlighted.

Chassis Device View

This view uses a Chassis Device icon to provide a logical representation of the device chassis and its interfaces or ports. The Chassis Device icon provides menu and double-click zone access to the views that monitor the interfaces.

[Figure 4](#) shows an example of the Chassis Device view for the 2E42-27R device.

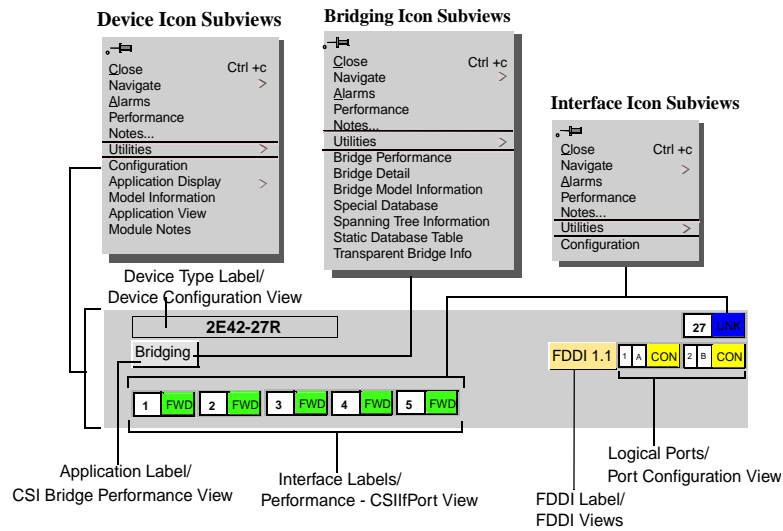
Figure 4: Chassis Device View



Chassis Device Icon

This icon is a logical representation of the physical device and its front panel interfaces or ports. This section describes the information available from the Chassis Device icon. [Figure 5](#) shows an example of the Chassis Device icon for the 2E42-27R device.

Figure 5: Chassis Device Icon



Device Type Label

This label identifies the type of device. (Refer to [Figure 5](#).) Double-click this area to open the Device Configuration view described in [Configuration Views](#).

Device Icon Subviews Menu

[Table 4](#) lists each of the device-specific Icon Subviews menu selections available for this device.

Table 4: Device Icon Subviews Menu

Menu Selection	Description
Configuration	Opens the Device Configuration view described in Configuration Views .
Application Display	Opens the Application menu selection. This menu selection allows you to select the physical or bridging application.
Model Information	Opens the Model Information View (Page 43).

Table 4: Device Icon Subviews Menu

Application View	Opens the Application view described in Application Views .
Module Notes	Opens the Module Notes dialog box.

Application Label

This label provides access to the Bridging Icon Subviews menu. (Refer to [Table 5](#).) Double-click the Application label to open the CSI Bridging Performance view described in the **SPECTRUM Views**.

Bridging Icon Subviews Menu

Table 5 lists specific Icon Subviews menu selections for the Application Label.

Table 5: Application Label Icon Subviews Menu

Menu Selection	Description
Bridge Performance	Opens the Performance view described in the SPECTRUM Views .

Table 5: Application Label Icon Subviews Menu (Continued)

Bridge Detail	Opens the Detail view described in the SPECTRUM Views .
Bridge Model Information	Opens the Model Information view described in the SPECTRUM Views .
Special Database	Opens the Special Database view.
Spanning Tree Information	Opens the Spanning Tree Information view described in the Application Views section.
Static Database Table	Opens the Static Database Table view described in the Application Views section.
Transparent Bridge Info	Opens the Transparent Bridge Information view, with Forwarding Database and Port Tables described in the Application Views section.

Interface Labels

These labels identify the number and activity status of each port. (Refer to [Figure 5](#).) [Table 6](#) and [Table 7](#) list the possible states relative to the application selected. Double-click the label to open the Performance - CSIIIfPort view described in the **SPECTRUM Views**.

Table 6: Interface Status for the Bridging Application

Color	Status	Description
Green	FWD	Bridge port is forwarding.
Blue	DIS	Port is disabled.
Magenta	LST	Bridge is in the listening mode.
Magenta	LRN	Bridge is in the learning mode
Orange	BLK	Bridge port is in the blocking mode.
Red	BRK	Bridge port is broken.
Blue	UNK	The status is unknown.

Table 7: Interface Status for the Physical (MIB II) Application

Color	Status	Description
Green	ON	Port is operational.
Blue	OFF	Port is off.
Yellow	TST	Port is in the test mode.

Interface Icon Subviews Menu

This menu's Configuration option opens the Configuration dialog box, which allows you to enable or disable the selected port.

FDDI Label

This label provides access to the FDDI Icon Subviews menu. (Refer to [Figure 5](#).) Double-click this label to open the FDDI Application views described in the **Transmission Applications** documentation.

FDDI Icon Subviews Menu

[Table 8](#) describes each of the Icon Subviews menu selections available for FDDI.

Table 8: FDDI Label Icon Subviews Menu

Menu Selection	Description
FDDI Performance	Opens the FDDI Performance view. (Not available for FddiNoMAC).
FDDI Configuration	Opens the FDDI Configuration view.
FDDI Station List	Opens the FDDI Station List view. (Not available for FddiNoMAC).
FDDI Model Information	Opens the Model Information view for FDDI.

Logical Ports Labels

These labels provide access to the Logical Port Icon Subviews menu. Double-click a label to open the Port Configuration View.

Logical Ports Icon Subviews Menu

[Table 9](#) describes each of the Icon Subviews menu selections.

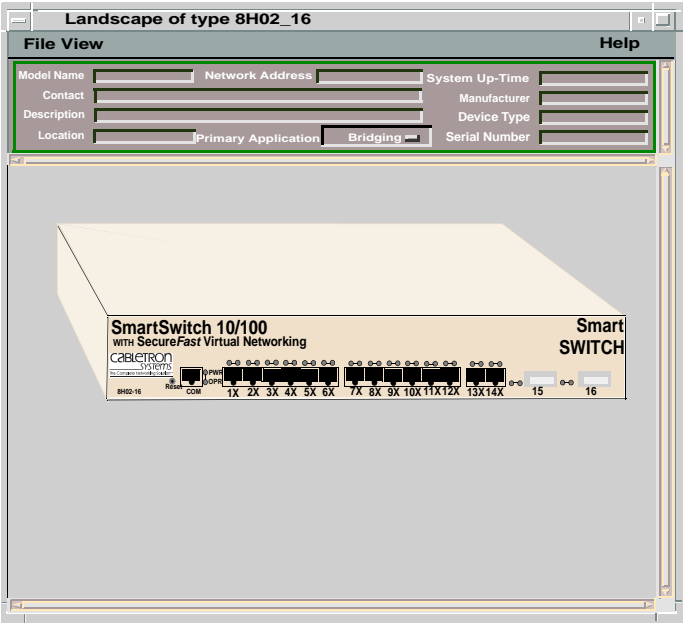
Table 9: Logical Ports Icon Subviews Menu

Menu Selection	Description
Port Notes	Opens the Port Notes facility.
Enable/Disable Port	Enables or disables the selected port.
Port Configuration View	Opens the Port Configuration view.

Physical Device View

This view provides a static image of the device and its ports or interfaces and does not change to reflect configuration status. [Figure 6](#) (Page 19) is an example of the Physical Device view for the 8H02-16 device.

Figure 6: Physical Device View



Device Topology View

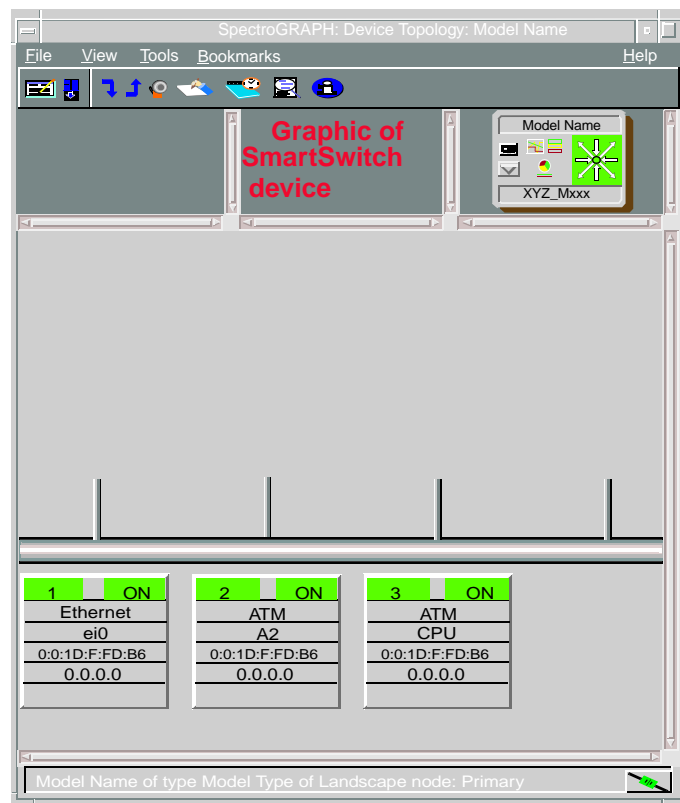
This section describes the Device Topology view available for models of the SmartSwitch devices.

Access: From the **Icon Subviews** menu for the Device icon, select **Device Topology**.

The Device Topology view (Figure 7) shows the connections between a modeled device and other network entities. The lower panel of the view uses Interface icons to represent the device's serial, network, and I/O ports. These icons provide the same information and menu options as those in the [Device Views](#) (Page 10). If a device is connected to a particular interface, a Device icon appears on the vertical bar above the Interface icon along with an icon representing the network group that contains the device.

Refer to the **SPECTRUM Views** documentation for details on Device Topology view.

Figure 7: Device Topology View



Application Views

This section describes the Application view and the associated application-specific subviews available for models of SmartSwitch 2000 devices in SPECTRUM.

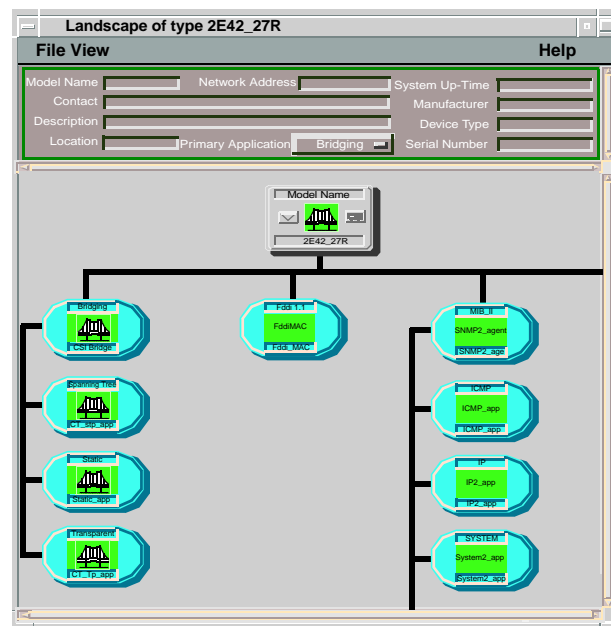
Access: From the **Icon Subviews** menu for the Device icon, select **Application**.

Main Application View

When a device model is created, SPECTRUM automatically creates models for each of the major and minor applications supported by the device. The main Application view identifies all of these application models, shows their current condition status, and provides access to application-specific subviews. [Figure 8](#) shows this view in the Icon mode. If you prefer the List mode, which displays applications as text labels, select **View > Mode > List**.

For more information on this view, refer to the **MIBs and the Application View** document. This section describes the device-specific applications listed below for the SmartSwitch Modules. The corresponding application model type is shown in parentheses.

Figure 8: Main Application View



Supported Applications

SPECTRUM's applications can be grouped within two general categories as follows:

- Applications associated with non proprietary MIBs. See [Common Applications](#) below.
- Applications associated with device-specific MIBs. See [Device-Specific MIBs](#) (Page 23).

Common Applications

For the most part, these applications represent the non proprietary MIBs supported by your device. Listed below (beneath the title of the SPECTRUM document that describes them) are some of the common applications currently supported by SPECTRUM.

**Note:**

The documents listed below (in bold font) are available for viewing at:

www.aprisma.com/manuals/

- **Routing Applications**

- Generic Routing
- Repeater
- AppleTalk
- DECnet
- OSPF

- OSPF2
- BGP4
- VRRP

- **Bridging Applications**

- Ethernet Special Database
- Spanning Tree
- Static
- Transparent
- PPP Bridging
- Source Routing
- Translation
- QBridge

- **MIB II Applications**

- SNMP
- IP
- ICMP
- TCP
- System2
- UDP

- **Transmission Applications**

- FDDI
- Point to Point
- DS1
- DS3
- RS-232
- WAN

- Frame Relay
- Token Ring
- Ethernet
- Fast Ethernet
- rfc1317App
- rfc1285App
- rfc1315App
- 802.11App
- SONET
- **Technology Applications**
 - APPN
 - ATM Client
 - DHCP
 - PNNI
 - rfc1316App
 - DSLw
- **DOCSIS Applications**
 - DOCSISCblDvApp
 - DOCSISQOSApp
 - DOCSISBPI2App
 - DOCSISBPIApp
 - DOCSISIFApp
- **Digital Subscriber Line (DSL) Applications**
 - ADSL

Device-Specific MIBs

SPECTRUM imports the following device-level proprietary MIBs into its database:

- ctifremap-2-mib
- fastethernet-mib
- ctatm-mib

These MIBs can be used in conjunction with SPECTRUM's optional customization products (referred to as the Level I Tool Kits) to create application models and views that display the condition of selected MIB objects.

**Note:**

Aprisma Management Technologies can provide training, technical assistance, and custom engineering support services for creating application models and their associated views.

The following device-specific applications are described in the remainder of this section:

- [802_1Q_VLAN Application](#) (Page 24)
- [Interface Remap Application](#) (Page 24)
- [Fast Ethernet Application](#) (Page 25)
- [FDDI FNB Application](#) (Page 28)
- [ATM Client Application](#) (Page 29)

802_1Q_VLAN Application

Access: From the **Icon Subviews** menu for the *802_1Q_VLAN Application* view, select **VLAN Table**.

Double-clicking on any entry in this table displays the [VLAN Table Details View](#) (Page 24) described later in this section.

This view provides the following information.

VID

VLAN identification number.

VLAN Name

Name of the selected VLAN.

VLAN Status

Status of the selected VLAN.

VLAN Table Details View

Access: Double-click any entry in the *VLAN Table* view.

This view allows you to edit information for the VLAN Application.

You may edit the following information.

VLAN VID

This field is not writable and provides the VLAN identification number.

VLAN Name

You may change the name of this VLAN to anything you desire.

VLAN Status

You can either enable or disable this VLAN.

Interface Remap Application

Access: From the **Icon Subviews** menu for the *CtIfRemapApp* icon, select **Port Remap**.

The name of the model type used to model the application is CtIfRemapApp. The application provides the ability to map one or more interfaces to another interface. A map is defined by creating a row in the Interface Remap Table (described below) to specify the source and destination interfaces. When a source interface is remapped to a destination interface, the destination interface transmits all packets received or transmitted on the source interface. Counters on the destination interface increment for all packets transmitted by normal bridging or due to the interface remap.

The Interface Remap Table provides the following information.

Number Entries

The number of active entries in the Interface Remap Table.

Physical Errors Enable

Physical error remapping can be Enabled, Disabled, or Unsupported. Unsupported indicates that the device is incapable of remapping physical errors.

Max Number Entries

The maximum number of entries allowed in the Interface Remap Table.

Sort

Used to sort the Interface Remap Table.

Find

Used to search the Interface Remap Table for a specific interface.

Update

Used to update the Interface Remap Table.

Source Port

The source interface that will have packets redirected to the destination interface as defined by **Destination**.

Destination

The interface that will see all packets redirected from **Source Port**.

Port Redirect

This button opens the Port Redirect view, where you can add or delete an entry from the table.

Fast Ethernet Application

The name of the model type used to model the application is FastEnetApp. The application provides the Fast Ethernet Port Table and Fast Ethernet Configuration view, which allow you to configure ports for Ethernet or Fast Ethernet transmission or use Auto-Negotiation to determine transmission mode.

Fast Ethernet Port Table

Access: From the **Icon Subviews** menu for the FastEnetApp icon, select **Control Table**.

The Fast Ethernet Port Table provides the following information.

Interface

The interface number to which this Fast Ethernet information applies.

Port Group

The port group number to which this Fast Ethernet information applies.

Port

The physical port number to which this Fast Ethernet information applies.

Operational Mode

The current operational mode of this port.

Fast Ethernet Configuration View

This view allows you to configure ports for Ethernet or Fast Ethernet transmission or to use Auto-Negotiation in determining transmission mode. Open this view by double-clicking any entry in the Fast Ethernet Port Table. The Fast Ethernet Configuration view carries the Interface, Port Group, and Port information over from the Port Table.

Operational Mode

These selections indicate the current operational mode of this port. If you select Auto-Negotiation, you can select as many modes as needed from the Advertised Ability selections. You can only select one Operational Mode: either Auto-Negotiation or one of the specific modes. [Table 10](#) lists the

current operational modes, their values, and their descriptions.

Table 10: Current Operational Mode Values and Descriptions

Operational Mode	Value	Description
Auto-Negotiation	2	Auto-Negotiation/Parallel Detection
10Base-T	8	10Base-T
10Base-TFD	16	Full Duplex 10Base-T
100Base-TX	32	100Base-TX
100Base-TXFD	64	Full Duplex 100Base-TX
100Base-T4	128	100Base-T4
100Base-FX	256	100Base-FX
100Base-FXFD	512	Full Duplex 100Base-FX

Advertised Ability

These selections indicate the advertised ability of the local hardware. They become active on ports that have Auto-Negotiation enabled. Auto-Negotiation allows the FE-100TX RJ-45 port to self-configure to 10 or 100 Mbps depending on the speed of the attached device. The interfaces can also dynamically configure themselves for full duplex or half duplex (standard mode) operation when both ends of the link support Auto-

Negotiation. When only one link partner supports Auto-Negotiation, the mode defaults to half duplex.

Both local and remote management for the SmartSwitch Module provide the ability to disable Auto-Negotiation if desired. A port that does not support Auto-Negotiation will be read as “other” (1).

[Table 11](#) lists the Advertised Ability modes, their values, and their descriptions.

Table 11: Advertised Ability Mode Values and Descriptions

Advertised Ability	Value	Description
10Base-T	8	10Base-T
10Base-TFD	16	Full Duplex 10Base-T
100Base-TX	32	100Base-TX
100Base-TXFD	64	Full Duplex 100Base-TX
100Base-T4	128	100Base-T4
100Base-FX	256	100Base-FX
100Base-FXFD	512	Full Duplex 100Base-FX

Received Technology

These selections indicate the advertised ability of the remote hardware or link partner. These modes are read-only. [Table 12](#) lists the Received Technology modes, their values, and their descriptions.

Table 12: Received Technology Mode Values and Descriptions

Received Technology	Value	Description
Undefined	1	Undefined
Auto-Negotiation	2	Auto-Negotiation/Parallel Detection
Not-Detected	4	Link Partner does not support Auto-Negotiation
10Base-T	8	10Base-T
10Base-TFD	16	Full Duplex 10Base-T
100Base-TX	32	100Base-TX
100Base-TXFD	64	Full Duplex 100Base-TX
100Base-T4	128	100Base-T4

Table 12: Received Technology Mode Values and Descriptions

Received Technology	Value	Description
100Base-FX	256	100Base-FX
100Base-FXFD	512	Full Duplex 100Base-FX

FDDI FNB Application

This section describes the FDDI FNB application supported by this device. The name of the model type used to model the application is FddiMAC. This application is available when the appropriate High Speed Interface Module (HSIM) is installed.

Table 13 lists the application-specific subviews available from the Icon Subviews menu for the FDDI FNB application.

Table 13: FDDI FNB Application Subviews menu

Menu Selection	Description
DevTop	Opens the Device Topology view.

Table 13: FDDI FNB Application Subviews menu

Station List	Opens the FDDI Station List View (Page 28).
Acknowledge	Allows you to acknowledge an alarm condition.
Configuration	Opens the Device Configuration view described in Configuration Views .
Model Information	Opens the Model Information View (Page 43)

FDDI Station List View

This view displays information about the devices connected to the FDDI ring and provides the following functionality and information.

Update

This button updates the contents of the Station Table.

MAC/Canonical

This button controls which type of address is shown in the Station List. It toggles between MAC (Physical) and Canonical (Ethernet) and displays the format not currently selected.

Set Filter/Clear Filter

Set Filter Opens the Filter Dialog box for the selected column of the Station table. Type a character string to search the column.

Clear Filter returns the Station table to its normal state.

Sort Up

This button has three possible states: Sort Up, Sort Down, and Unsort.

Sort Up organizes the list within a selected column from the lowest alphanumeric value to the highest.

Sort Down organizes the list within a selected column from the highest alphanumeric value to the lowest.

Unsort returns the fields to their normal state.

Station Address

Displays the MAC or Canonical address of this node on the ring.

Node Class

Displays the type of FDDI ring device. [Table 14](#) lists the possible node classes.

Table 14: FDDI Node Classes

Node Class	Description
Station	An FDDI node capable of receiving, transmitting, and repeating data.
Concentrator	An FDDI node that provides attachment points for stations that are not directly connected to the FDDI ring.

Ring Topology

Displays the current state of this FDDI node.

Master Ports

Displays the number of master ports on this node. Values range from 0 to 255.

Upstream Neighbor

Displays the canonical or MAC address of the last node to receive the token before this node.

ATM Client Application

This section describes the ATM Client application supported by this device. This application is

available when the appropriate High Speed Interface Module (HSIM) is installed.

Table 15 lists the application-specific subviews available from the Icon Subviews menu for the ATM Client application:

Table 15: ATM Client Application Subviews menu

Menu Selection	Description
Configuration	Opens the Device Configuration view described in Configuration Views .
VCL Table	Opens the ATM Client Application VCL View (Page 30).
Interfaces	Opens the Interfaces view described later in this section.

ATM Client Application VCL View

This view provides a table containing detailed information about the virtual channels passing through this application. The ATM Client Application Virtual Channel Link view provides the following information.

Admin Status

This object is implemented only for a VCL that terminates a VCC (i.e., one that is not cross-connected to other VCLs). Its value specifies the desired administrative state of the VCL. The Up state indicates that the traffic flow for this VCL is enabled. The Down state indicates that the traffic flow for this VCL is disabled.

Oper Status

This object shows the current operational status of the VCL. The Up and Down states indicate that the VCL is currently operational or not operational, respectively. The Unknown state indicates that the status of this VCL cannot be determined.

Last Change

This is the value of the MIB II's sysUpTime object at the time the VCL entered its current operational state. If the current state was entered prior to the last re-initialization of the agent, then this object contains a zero value.

RTD (Receive Traffic Description) Index

The value of this object identifies the row in the ATM Traffic Descriptor Table that applies to the receive direction of this VCL.

TTD (Transmit Traffic Description) Index

The value of this object identifies the row of the ATM Traffic Descriptor Table that applies to the transmit direction of this VCL.

AAL (ATM Adaptation Layer) Type

An instance of this object only exists when the local VCL endpoint is also the VCC endpoint and the AAL is in use. The type of AAL used on this VCC includes AAL1, AAL3/4, and AAL5. "Other" indicates a user-defined AAL type. "Unknown" indicates that the AAL type cannot be determined.

Transmit Size

This is the maximum AAL5 CPCS SDU size, in octets, that is supported on the transmit direction of this VCC. An instance of this object only exists when the local VCL endpoint is also the VCC endpoint and the AAL5 is in use.

Receive Size

This is the maximum AAL5 CPCS SDU size, in octets, that is supported on the receive direction of this VCC. An instance of this object only exists when the local VCL endpoint is also the VCC endpoint and the AAL5 is in use.

Encaps Type

This is the type of data encapsulation used over the AAL5 SSCS layer. An instance of this object only exists when the local VCL endpoint is also

the VCC endpoint and the AAL5 is in use. The definitions reference RFC 1483 Multiprotocol Encapsulation over ATM AAL5 and to the ATM Forum LAN Emulation specification.

This object is implemented only for a VCL that is cross-connected to other VCLs that belong to the same VCC. All such associated VCLs have the same value for this object, and all their cross-connections are identified by entries in the Cross Connect Table for which VCL CC Id has the same value. The value of this object is initialized by the Row Status agent after the associated entries in the Cross Connect Table have been created.

This object is used to create, delete, or modify a row in this table. To create a new VCL, this object is initially set to "createAndWait" or "createAndGo." This object must not be set to "active" unless the following columnar objects exist in this row:

- RTD Index
- XTD Index
- AAL Type (if the local VCL endpoint is also the VCC endpoint)
- Transmit Size (for AAL5 connections only)
- Receive Size (for AAL5 connections only)
- Encaps Type (for AAL5 connections only)

**Note:**

The Community Name field in the Communication Information Panel of the Model Information view must be set to “private” in order to change the fields in the table views.

To make a change to the rows in the table view, do the following:

- 1 In the Communication Information panel of the Virtual Link view, change the Community Name field to “private.”
- 2 From the Icon Subviews menu, select **Table View**.
- 3 Set the path information for the row you wish to create, change, or remove.
- 4 Press **Return** and click on **OK**.
- 5 To create or change a row, click on the **Create** button, change the applicable fields in the Change view, and click the right mouse button. Click **OK**.
- 6 Click on the **Validate Row** button and return to the Application Table view to see the change.

- 7 To remove a row, click on the **Remove** button and then the **Update** button. The row will then be removed from the table view.

The Virtual Channel Link table can be sorted, searched, and updated using the following buttons within the view:

Sort

This button allows you to sort the table based on the column heading you select. To use the Sort feature, select a column heading and click on the **Sort** button. The table is rearranged according to the chosen column.

Find

This button allows you to search the table for a specific entry. To use the Find feature, select a column heading, click on the **Find** button, and enter a search string in the dialog box.

Update

This button allows you to update information in the table.

Double-clicking on a field entry opens the interface-specific ATM Switch Application Virtual Channel Link view, which contains the following information. You can change these fields.

Interface

This field displays the interface index for this VPI and VCI.

VPI (Virtual Path Identifier)

This field displays the VPI value of the VCL. The maximum VPI value cannot exceed the value allowable by the Interface MaxVPI Bits.

VCI (Virtual Channel Identifier)

This field displays the VCI value of the VCL. The maximum VCI value cannot exceed the value allowable by the Interface MaxVCI Bits.

Admin Status

This object is implemented only for a VCL that terminates a VCC (i.e., one that is NOT cross-connected to other VCLs). Its value specifies the desired administrative state of the VCL. The Up state indicates that the traffic flow is enabled for this VCL. The Down state indicates that the traffic flow is disabled for this VCL.

Oper Status

This object indicates the current operational status of the VCL. The Up and Down states indicate that the VCL is currently operational or not operational, respectively. The Unknown state indicates that the status of this VCL cannot be determined.

Row Status

This object is used to create, delete, or modify a row in this table. To create a new VCL, this object is initially set to “createAndWait” or “createAndGo.” This object must not be set to “active” unless the following columnar objects exist in this row:

- RTD Index
- XTD Index
- AAL Type (if the local VCL endpoint is also the VCC endpoint)
- Transmit Size (for AAL5 connections only)
- Receive Size (for AAL5 connections only)
- Encaps Type (for AAL5 connections only)

Encaps Type

This is the type of data encapsulation used over the AAL5 SSCS layer. An instance of this object only exists when the local VCL endpoint is also the VCC endpoint, and AAL5 is in use. The definitions reference RFC 1483 Multiprotocol Encapsulation over ATM AAL5 and to the ATM Forum LAN Emulation specification.

AAL (ATM Adaptation Layer) Type

This is the type of AAL used on this VCC, which includes AAL1, AAL3/4, and AAL5. An instance of this object only exists when the local VCL endpoint is also the VCC endpoint, and AAL is in

use. The other may be a user-defined AAL type. The Unknown type indicates that the AAL type cannot be determined.

Last Change

The value of MIB II's sysUpTime object at the time this VCL entered its current operational state. If the current state was entered prior to the last re-initialization of the agent, then this object contains a zero value.

Cross Connect Id

This object is implemented only for a VCL that is cross-connected to other VCLs that belong to the same VCC. All such associated VCLs have the same value of this object, and all their cross-connections are identified by entries in the Cross Connect Table for which VCL CC Id has the same value. The value of this object is initialized by the agent after the associated entries in the Cross Connect Table have been created.

Xmit Descr Index

The value of this object identifies the row of the ATM Traffic Descriptor Table that applies to the transmit direction of this VCL.

Transmit Size

An instance of this object only exists when the local VCL endpoint is also the VCC endpoint, and AAL5 is in use. The maximum AAL5 CPCS SDU

size in octets that is supported on the transmit direction of this VCC.

Rcv Descr Index

The value of this object identifies the row in the ATM Traffic Descriptor Table that applies to the receive direction of this VCL.

Receive Size

An instance of this object only exists when the local VCL endpoint is also the VCC endpoint, and AAL5 is in use. The maximum AAL5 CPCS SDU size in octets that is supported on the receive direction of this VCC.

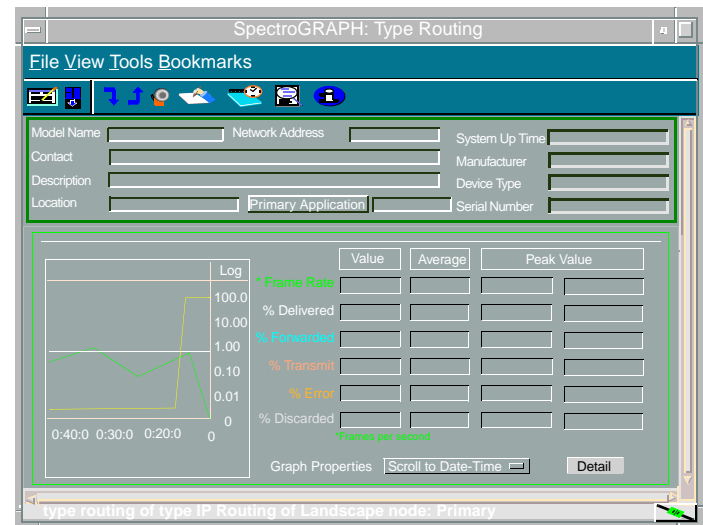
Performance Views

This section introduces the Performance view. For details concerning this view, refer to the **SPECTRUM Views** documentation

Performance views display performance statistics in terms of a set of transmission attributes, e.g., cell rates, frame rates, % error, etc. A typical view is shown in [Figure 9](#). The instantaneous condition of each transmission attribute is recorded in a graph. The statistical information for each attribute is presented in the adjacent table.

Generally, you determine performance at the device level through Performance views accessed from the Device and Application icons. You determine performance at the port/interface level through Performance views accessed from Interface icons.

Figure 9: Performance View



Configuration Views

This section describes the Configuration views available for the SmartSwitch Modules. These views display network configuration and operating information for the device and its interfaces.

The following Configuration views are available for this device:

- [Device Configuration View](#) (Page 36)
- [Port Configuration - CSII/Port View](#) (Page 38)
- [FddiMAC Device Configuration View](#) (Page 38)
- [Port Configuration View](#) (Page 41)

Device Configuration View

This view provides device-specific configuration information as well as access to other views that allow you to configure device components.

Device Configuration Information

This section of the Configuration view displays the following device-specific information.

Contact Status

Indicates whether a connection with the device has been established.

Interface Configuration Table Information

This table within the Device Configuration view provides the following configuration information about the device's interfaces or ports.

Number of Interfaces

Displays the number of interfaces or ports available for this device.

Index

Displays the interface or port number.

Type

Displays the type of hardware interface or port. [Table 16](#) lists the possible interface types.

Table 16: Interface Types

Type	Description
Other	None of the following
Reg1822	Regular 1822

Table 16: Interface Types (Continued)

Type	Description
HDH1822	HDLc Distant Host protocol
DDNX25	Defense Data Network X.25
rfc877X25	RFC877 X.25
Ethernet	Ethernet CSMA/CD
iso88023	ISO CSMA/CD
iso88024	ISO token bus
iso88025	ISO token ring
iso88026	ISO man
starLan	StarLAN IEEE 802.3
Prot10MB	ProNET 10 Mbps
Prot80MB	ProNET 80 Mbps
HyChan	Hyperchannel
FDDI	Fiber Distributed Data Interface
LAPB	X.25 Line Access Procedure, Balanced
SDLC	IBM Synchronous Data Link Control protocol
T1	T1 link (USA and Japan)
CEPT	T1 link (Europe)

Table 16: Interface Types (Continued)

Type	Description
BasicISDN	Basic Integrated Services Digital Network
PrimISDN	Proprietary Integrated Services Digital Network
PPSerial	Proprietary Point to Point Serial
PPP	Point to Point Protocol
SFTWARLPBK	Software Loopback
CLNPoverIP	Connectionless Network Protocol over IP
Enet3MB	Ethernet 3 Mbps
XNSoverIP	Xerox Network Service Protocol over IP
SLIP	Generic Serial Line IP
ULTRA	ULTRA Technologies
T-3	T3 link
SMDS	Switched Multimegabit Data Service
FrameRelay	T1 Frame relay
802.1 Q	802.1 Q VLAN Encapsulation

Phy Address

Displays the physical (MAC) address of the interface or port.

Max Frame Size

Displays the maximum frame size for the interface or port.

Oper Status

Displays the current operational state of this interface or port (Up, Down, or Testing).

Port Configuration - CSIfPort View

Access: From the Icon Subviews menu for the Interface Device icon, select **Configuration**.

This view provides information on the configuration and operating status of the device interfaces or ports.

Interface Index

Displays the numerical value identifying the interface or port.

Interface Type

Displays the type of interface or port.

Operation Status

Displays the current operating status of the interface or port. Possible values are On, Off, and Test.

Admin Status

Displays the current administrative status of the interface or port. Possible values are On, Off, and Test.

IF Description

Provides a description of the interface or port.

FddiMAC Device Configuration View

Access: From the Icon Subviews menu for the FddiMAC Application icon, select **Configuration**.

The FddiMAC Device Configuration view provides configuration and operating status information.

Station Configuration

This section of the FddiMAC Device Configuration view provides the following configuration information on the FDDI station.

Ring State

The current state of the FDDI Ring. [Table 17](#) lists the possible states and their descriptions.

Table 17: FDDI Ring States

Ring States	Description
Isolated	The concentrator is not attached to the ring.
Non-Op	The concentrator is attempting to enter the ring.
Ring-Op	The ring is operational.
Detect	The claim/beacon process of the FDDI ring protocol has exceeded one second. This indicates a potential problem.
Non-Op-Dup	The ring failed to complete the claim/beacon process because a duplicate FDDI address has been detected.
Ring-Op-Dup	The ring is operational, but a duplicate FDDI address has been detected.
Directed	The claim/beacon process did not complete within nine seconds. The concentrator is now sending directed beacons to indicate a problem.
Trace	A problem has been detected with the station or its upstream neighbor. A trace is being sent to notify the upstream neighbor of the problem. The concentrator and all stations between the concentrator and its upstream neighbor can perform self-tests.

MAC Configuration

The actual configuration of the station. [Table 18](#) lists the possible configurations and their descriptions.

Table 18: SMT MAC Configurations

Ring States	Description
Isolated	The path is not inserted into any path.
Local_A	The A port is inserted into a local path and the B port is not.
Local_B	The B port is inserted into a local path and the A port is not.
Local_AB	Both A and B are inserted into a local path.
Local_S	The S port is inserted into a local path.
Wrap_A	The secondary path is wrapped to the A port.
Wrap_B	The secondary path is wrapped to the B port.
Wrap_AB	The primary path is wrapped to the B port and the secondary path is wrapped to the A port.
Wrap_S	The primary port is wrapped to the S port.
C_Wrap_A	The primary and secondary paths are joined internally in the station and wrapped to the A port. Regarding token flow, all resources on the secondary path precede those of the primary path.

Table 18: SMT MAC Configurations

C_Wrap_B	The primary and secondary paths are joined internally in the station and wrapped to the B port. Regarding token flow, all resources on the secondary path precede those of the primary path.
C_Wrap_S	The primary and secondary paths are joined internally in the station and wrapped to the S port. Regarding token flow, all resources on the secondary path precede those of the primary path.
Thru	The primary path enters the A port and emerges from the B port. The secondary path enters the B port and emerges from the A port.

Current MAC Path

The ring that this station resides on. Possible entries are Primary, Secondary, or Local.

MAC Address

The MAC (physical) address of this station.

MAC Count

The number of MACs supported by this station.

The number of non-master ports on this station.

Master Ports

The number of master ports on this station.

SMT Information

This section of the FddiMAC Device Configuration view provides the following configuration information on the FDDI SMT.

SMT Version

The version of Station Management (SMT) running.

OBS Present

Indicates whether an Optical Bypass Switch (OBS) is connected.

T-Notify (sec)

The timer value, in seconds, used in Neighbor Notification Protocol. The allowed range is from 2 to 30 seconds.

T-Req (milli sec)

The Target Token Rotation Time (TTRT) bid, in milliseconds, made by this concentrator.

T-Neg (milli sec)

The winning TTRT bid, in milliseconds, on the ring.

TVX (milli sec)

The valid transmission time, in milliseconds.

Port Configuration View

Access: Highlight the Logical Port icon in the Chassis Device view. From the View menu, select **Icon Subviews -> Port Configuration View**.

The Port Configuration view provides information on the configuration and operating status of the ports.

The Port Management section of the FDDI Port Configuration view provides the following information:

Port Action

Allows you to enable/disable the port. The state returns to “Other” once the port has been Enabled/Disabled.

Port State

The status of this port. Possible states are disabled, connecting, standby, and active.

Port Type

The type of port. Possible port types are A_Port, B_Port, Slave, or Master.

Link Error Rate Estimate

The link error rate estimate is a cumulative long-term average of the bit error rate, which represents the quality of the physical link. The link error rate estimate is computed when the port is connected and every 10 seconds thereafter.

It ranges from 10^{-4} to 10^{-15} and is reported as a whole integer. For example, if the port's link error rate estimate is computed to be 10^{-5} , the value reported in this field would be 5, which represents an actual rate of 1,250 bit errors per second. A lower link error rate estimate indicates a higher bit error rate.

Link Error Monitor Count

The aggregate link error monitor count. This count is set to zero on station power up and increments each time the port's link error monitor detects an error. An increasing link error monitor count usually indicates a problem with the connectors or the cable between this port and the node.

Link Error Rate Cutoff

The link error rate threshold at which a link connection is flagged as faulty and the port disabled by SMT. The default link error rate cutoff threshold is 7, which represents 12.5 bit errors per second.

Link Error Rate Alarm

The link error rate threshold above which an alarm for the port will be generated. The default link error rate alarm threshold is 8, which represents 1.25 bit errors per second.

Link Error Monitor Reject Count

The link error monitor count of the times the link has been rejected.

Model Information View

This section provides a brief overview of the Model Information view.

Model Information views display administrative information about devices and their applications and let you set thresholds and alarm severity for the devices.

Figure 10 shows a sample Model Information view. The layout of this view is the same for all model types in SPECTRUM but some information will vary depending on the model it defines. Refer to the **SPECTRUM Views** documentation for a complete description of this view.

Figure 10: Model Information View

The screenshot displays the 'SpectroGRAPH: Model Name' window. The interface includes a menu bar (File, View, Tools, Bookmarks, Help) and a toolbar with various icons. A green-bordered section at the top contains input fields for Model Name, Description, Location, Contact, Manufacturer, SysUpTime, Net Address, Device Type, and Serial Number. The main content area, titled 'Model Information View', is divided into three sections: 1. General Information: Fields for MM Name, MM Part Number, MM Version Type, Model Type, Model Creation Time, Model Created By, Model State, Security String, Condition Value, Contact Status, Lost Child Count, Value When Yellow, Value When Orange, and Value When Red. 2. Communication Information: Fields for DCM TimeOut, DCM Retry, Community Name, and Mgmt Protocol. 3. Poll / Log Information: Fields for Poll Interval, Poll Status (set to 'True'), Log Ratio, Last Successful Poll, and two large empty boxes labeled 'Logged' and 'Polled'. The status bar at the bottom indicates 'IP Address of Model Type of Landscape: Primary'.

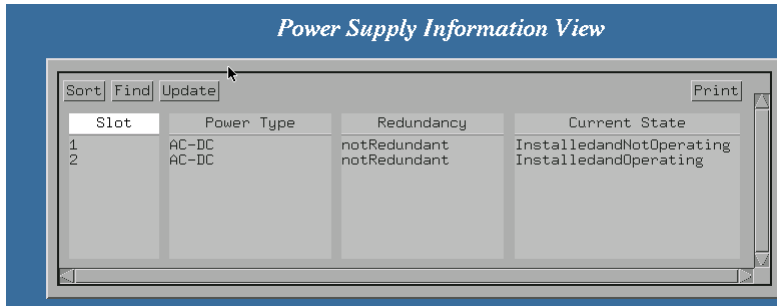
Power Supply Information View

This section provides a description of the Power Supply Information view.

Access: Highlight the device model and choose **Icon Subviews > Power Supplies** from the View menu.

This view shows the status of the device's power supplies. The table in this view shows power supply slot, type, redundancy, and current state.

Figure 11: Power Supply Information View



Slot	Power Type	Redundancy	Current State
1	AC-DC	notRedundant	InstalledandNotOperating
2	AC-DC	notRedundant	InstalledandOperating

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